What is claimed is:

1.   An optimization method based on an evolution strategy, comprising the steps of:

describing one of a model, structure, shape and design to be optimized using a parameter set comprising object parameters;

creating offsprings of the parameter set by modifying the object parameters, wherein said modifying includes at least one of mutating the object parameters and recombining the object parameters;

evaluating the quality of the offsprings;

wherein the parameter set comprises at least one strategy parameter representing a step-size of the mutation of associated object parameters; and

adapting the number of object parameters and the number of associated strategy parameters during optimization.

2.   The optimization method of claim 1 further comprising the step of:

altering object parameters and strategy parameters, said altering includes at least one of selectively inserting object parameters and strategy parameters, and selectively removing object parameters and strategy parameters.

3.   The optimization method of claim 2, further comprising the step of:

estimating the value of a newly inserted strategy parameter based on the information of strategy parameters associated with correlated object parameters.

4.   The optimization method of claim 1, further comprising the step of:
estimating the value of a newly inserted strategy parameter based on the
information of strategy parameters associated with correlated object parameters.

5.   The optimization method of claim 1, further comprising the step of:
determining a position of said altering of said object parameter and an
associated strategy parameter using a random function.

6.   The optimization method of claim 5, further comprising the step of:
determining a time of said altering of said object parameter and the associated
strategy parameter using a random function.

7.   The optimization method of claim 1, further comprising the step of:
determining a time of said altering of said object parameter and an associated
strategy parameter using a random function.

8.   The optimization method of claim 1, further comprising the step of:
determining a position of said altering of said object parameter and an
associated strategy parameter by the progress of the evolutionary optimization.

9.   The optimization method of claim 8, further comprising the step of:

determining a time of said altering of said object parameter and the associated

strategy parameter by the progress of the evolutionary optimization.

10.   The optimization method of claim 8, further comprising the step of:

determining a time of said altering of said object parameter and an associated

strategy parameter by the progress of the evolutionary optimization.

11.   The optimization method of claim 1, wherein the mutating of the object

parameters does not directly influence the result of the evaluating step.

12.   An optimization method based on an evolution strategy, comprising the

steps of:

describing one of a model, structure, shape and design to be optimized using a

parameter set comprising object parameters;

creating offsprings of the parameter set by mutating of the object parameters

and the structure of a parameter set, the structure of a parameter set defined by the

number and position of the object parameters and the strategy parameters; and

evaluating the quality of the offsprings;

wherein the parameter set comprises at least one strategy parameter

representing the step-size of the mutation of associated object parameters.

13.   The optimization method of claim 12, wherein said step-size of the mutation is the variance of the normal distribution.

14.   The optimization method of claim 12, wherein said one of a model, structure, shape, and design is described using a spline.

15.   The optimization method of claim 14, wherein the object parameters comprise control points and knot points, the method further comprising the step of:

adapting a knot vector by inserting new control points and strategy parameters.

16.   The optimization method of claim 15, further comprising the step of:

estimating the values of newly inserted strategy parameters based upon the values of the strategy parameters of neighboring control points.

17.   A method for optimizing spline coded problems on the basis of an evolution strategy, comprising the steps of:

describing one of a model, structure, shape and design to be optimized using a parameter set comprising object parameters representing control points and knot points and at least one strategy parameter representing the step-size of the mutation of associated object parameters;

mutating the object parameters and the strategy parameters to create offsprings of the set having the steps of :

determining a control point insertion,

inserting the control point in the parameter set,

inserting a strategy parameter for the inserted control point,

determining the knot points modified by the insertion of the control points,

determining the weighted averaging of the strategy parameter values of the modified control points, and

assigning the weighted average value as the value of the inserted strategy parameter; and

evaluating the quality of the offsprings.

18.   The method of claim 17, wherein said step-size of the mutation is the variance of the normal distribution.

19.   The method of claim 17, to optimize a shape of at least one of an aerodynamic structure and a hydrodynamic structure.

20.   A computer program stored in a computer readable medium for performing the method of claim 17.